



A.D. 1864, 16th *MARCH*. N° 668.

Respiratory Apparatus.

LETTERS PATENT to James Carrick, of George Square, Glasgow, Lanarkshire, Gentleman, for the Invention of “**IMPROVEMENTS IN APPARATUS FOR INHALING, BREATHING, AND RESPIRATORY PURPOSES.**”

Sealed the 8th September 1864, and dated the 16th March 1864.

PROVISIONAL SPECIFICATION left by the said James Carrick at the Office of the Commissioners of Patents, with his Petition, on the 16th March 1864.

I, JAMES CARRICK, of George Square, Glasgow, Lanarkshire, Gentleman,
5 do hereby declare the nature of the said Invention for “**IMPROVEMENTS IN APPARATUS FOR INHALING, BREATHING, AND RESPIRATORY PURPOSES,**” to be as follows:—

The Invention consists, first, in such a mechanical combination of parts as shall enable the functions of breathing to be performed by persons of delicate
10 lungs in such a manner that the air inhaled shall enter by one free aperture, and after passing through the lungs to be respired from a second distinct aperture.

Second, in the introduction of a purifying medium, either moist or dry, into the inhaling aperture or chamber of the respirator through which the air
15 must pass to enter the lungs.

Third, the introduction or combination with the mouth respirator of a portable apparatus so adapted as to contain medicated or other substances,

Carrick's Improvements in Respiratory Apparatus.

liquid or dry, with which it is desired the air to be inhaled should come in contact and be impregnated.

Fourth, the regulation of the temperature of the air to be inhaled, either at high or low degrees of heat, and either by natural or artificial means in connection with this portable apparatus, which may be worn on the person or 5 remain detached therefrom, as may be desired. The means by which these improvements in respiratory apparatus are carried out may be generally described as follows:—The inhaling apparatus consists of a chamber having two orifices. This chamber is so shaped as to fit the mouth of the wearer, permitting the ingress and egress of the air only to take place through the 10 openings before named. To the egress aperture a delicate self-acting valve is attached, which while it permits the free exit of the respired air effectually closes and prevents any return of the external atmosphere, which is therefore forced to enter the lungs by the other aperture. The medicating chamber, which may be used at the same time to regulate the temperature of the 15 inhaled air consists of a portable vessel closed to the egress and ingress of the atmosphere, except through its tubes or other connections with the respiring apertures of the respirator or inhaler. This portable vessel may be made of such a shape as to be worn underneath the garments, and may contain, if necessary, one or more chambers to hold liquid or other materials intended to 20 medicate or purify the inhaled air. This vessel may be either cooled or heated by artificial means other than the natural temperature of the body.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said James Carrick in the Great Seal Patent Office on the 15th September 1864.

25

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JAMES CARRICK, of George Square, Glasgow, Lanarkshire, Gentleman, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the day of in the year of our Lord One 30 thousand eight hundred and sixty-four, in the twenty-eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said James Carrick, Her special licence that I, the said James Carrick, my executors, administrators, and assigns, or such others as I, the said James Carrick, my executors, administrators, and assigns, should at any time agree 35 with, and no others, from time to time and at all times thereafter during

Carrick's Improvements in Respiratory Apparatus.

the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN APPARATUS FOR INHALING, BREATHING, AND RESPIRATORY PURPOSES," upon the condition (amongst others) that I, the said James Carrick, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said James Carrick, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

The Invention consists, first, in such a mechanical combination of parts as shall enable the functions of breathing to be performed by a person of delicate lungs, in such a manner that the air inhaled shall enter by one free aperture or apertures, and after passing through the lungs to be respired from a second distinct aperture or apertures.

Second, in the introduction of a purifying medium, either moist or dry, into the inhaling aperture or chamber of the respirator, through which the air must pass to enter the lungs.

Third, the introduction or combination with the mouth respirator of a portable apparatus so adapted as to contain medicated or other substances, liquid or dry, with which it is desired the air to be inhaled should come in contact and be impregnated.

Fourth, the regulation of the temperature of the air to be inhaled in combination with this respirator, either at high or low degrees of heat, and either by natural or artificial means, by the use of a portable apparatus, through which the air is caused to pass before reaching the respirator, and which may be worn either on the person or remain detached therefrom. The respirator, which may be constructed in any suitable material or form, consists of an enclosed chamber made to cover the mouth and chin of the wearer, but having an opening for the mouth, as in ordinary respirators. A division furnished with a valve or valves further divides the respirator into an upper and lower chamber. The lower chamber is designed to contain the purifying or medicating medium, and is so constructed that it may hold the fluid for the purpose of saturating and keeping moist the medium used. The bottom of this

Carrick's Improvements in Respiratory Apparatus.

chamber is fitted with a cover or lid and is perforated, so that air may pass freely into the respirator. In place of the air entering and leaving the respirator by any general aperture the action of inhaling causes the air respired to pass through the respirator and into the lungs by means of the valve or valves placed in the division between the upper and lower chamber of the 5 respirator, which valves, while they freely admit the air in its ingress, close against any egress of the air after it has passed through the lungs, and force it to leave the respirator by means of a separate set of valves placed in the upper chamber of the respirator. These valves in like manner, while they freely allow the respired air to pass away, close against any ingress of air in 10 the act of drawing breath. All inhalation is therefore made to pass through the lower and purifying chamber, which is therefore kept pure and free from any contact with the vitiated breath leaving the lungs. The action of the ingress valve or valves is protected from injury by a wire or other suitable guard. Provision is also made in this respirator for warming the air; to effect 15 this the instrument is shaped so as to cover the mouth and lower portion of the face. When the metallic wall of the respirator is brought into contact with the skin of the wearer, the metal used, being a good conductor of heat, the air in its passage through the lower purifying chamber of the respirator is raised and regulated in temperature. 20

I now proceed to describe the large portable inhaling apparatus, which is designed to be used in connection with the mouth respirator, and to contain a larger supply of any purifying or medicating substances, moist or dry, than can be contained in the medicating mouth respirator already described. The portable inhaling apparatus is also designed more powerfully to alter the tem- 25 perature of the air to be breathed into the lungs. This is effected by shaping it so that it may be worn under the dress, and partake of the temperature of the body. It may be described as a flat metallic or other vessel fitted with a cover or lid, in which there are two openings, one of those openings gives ingress to the air, and communicates with external air outside of the dress by 30 means of a tube, the other gives egress to the air passing through the inhaling vessel, and is attached to the mouth respirator by means of a tube. A wire screen is attached around the inner rim of the lid reaching to the bottom of the inhaling vessel; it is designed to be covered with suitable cloth or other porous material, through which the air is made to pass by the act of inhalation; this 35 cloth when saturated with liquid contained in the vessel by capillary attraction acts as a purifying and medicating medium. The ingress tube is without this porous wall while the egress tube is within it; by this arrangement the air is made to pass through the porous medium, and may thus be impregnated with

Carrick's Improvements in Respiratory Apparatus.

any substance held in solution by the liquid contained in the inhaling vessel; and when the agent with which it is intended the air should be impregnated is of a volatile or disagreeable character, a sponge saturated with this substance may be placed within the wire and cloth screen, which when saturated will
5 prevent any free escape of odour through the ingress opening. When the medicating agent used in the inhaling vessel is such that it cannot with safety be brought in contact with a metallic surface, a glass or porcelain vessel is attached to the bottom of the wire and cloth screen, in which the agent may be contained with which it is desired to saturate the cloth screen.

10 In witness whereof, I, the said James Carrick, have hereunto set my hand and seal, this the Seventh day of September, One thousand eight hundred and sixty-four.

JAMES CARRICK. (L.S.)

Witness,

15 NATH. J. HOLMES.

LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1864.

